

What is claimed is:

1. A system for manipulating illumination created by an array of light emitting devices, said system comprising:

a) a plurality of light emitting devices spatially arranged in an array, said array separated into one or more sections, wherein each section of the array includes light emitting devices capable of creating illumination having a predetermined wavelength range;

b) a macroscopic optical system adjacent to the plurality of light emitting devices, said macroscopic optical system enabling redirection of the illumination created by the plurality of light emitting devices; and

c) a microscopic optical system for diffusing the illumination created by the plurality of light emitting devices subsequent to the redirection by the macroscopic optical system, thereby providing a desired level of blending of the predetermined wavelengths ranges.

2. The system for manipulating illumination according to claim 1, wherein the macroscopic optical system includes at least one horizontal reflector.

3. The system for manipulating illumination according to claim 2, wherein the horizontal reflector is planar.

4. The system for manipulating illumination according to claim 3, wherein the horizontal reflector has a top and a bottom and at least one slot is formed in the top, wherein the slot is formed adjacent to one of the light emitting devices.

5. The system for manipulating illumination according to claim 4, wherein the slot is a trapezoidal shape.

6. The system for manipulating illumination according to claim 2, wherein the horizontal reflector is linear, tilted and curved.

7. The system for manipulating illumination according to claim 6, wherein the horizontal reflector is a parabolic shape.

8. The system for manipulating illumination according to claim 1, wherein the macroscopic optical system includes at least one vertical trough reflector.

9. The system for manipulating illumination according to claim 8, wherein the vertical trough reflector is a parabolic shape.

10. The system for manipulating illumination according to claim 1, wherein the macroscopic optical system includes at least one vertical parabolic trough reflector and at least one horizontal linear tilted parabolic reflector.

11. The system for manipulating illumination according to claim 1, wherein the microscopic optical system is a diffuser that diffuses the illumination in a horizontal direction.

12. The system for manipulating illumination according to claim 11, wherein the microscopic optical system is selected from the group comprising a holographic diffuser having a linear or elliptical distribution, a mechanically produced plastic diffuser and a lenticular array.

13. The system for manipulating illumination according to claim 1, wherein the microscopic optical system is a diffuser that diffuses the illumination evenly in all directions.

14. The system for manipulating illumination according to claim 13, wherein the microscopic optical system is selected from the group comprising a holographic diffuser having a circular distribution, a frosted or sandblasted glass diffuser, a plastic diffuser and a lenslet array.

15. A method for manipulating illumination created by an array of light emitting devices, said method comprising the steps of:

- a) redirecting the illumination using reflective optics formed in a grid pattern;
- b) diffusing the redirected illumination thereby blending the redirected illumination to create a desired illumination effect, said diffusing retaining a desired angular distribution of the illumination created by the reflective optics.

16. The method for manipulating illumination according to claim 15, wherein each light emitting device has a hemispherical luminous intensity distribution and wherein the step of redirecting the illumination results in the illumination being redirected into the upper portion of the hemispherical luminous intensity distribution.

17. The method for manipulating illumination according to claim 15, wherein the grid pattern provides a means for redirecting the illumination in a predominantly vertical direction and the grid pattern includes at least one vertical parabolic trough reflector and at least one horizontal linear tilted parabolic reflector and said horizontal reflector providing vertical redirection of the illumination.

18. The method for manipulating illumination according to claim 15, wherein the grid pattern provides a means for redirecting the illumination in a predominantly horizontal direction and the grid pattern includes at least one horizontal planar reflector and said horizontal reflector having top and bottom wherein a slot is formed in top of the horizontal reflector adjacent to at least one of the light emitting devices.

19. The method for manipulating illumination according to claim 18, wherein the slot has a trapezoidal shape.